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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY

FOREST INSECT INVESTIGATIONS

INSECT LOSS SURVEY OF THE THOMPSON RIVER VALLEY AND ADJACENT AREAS

WPB

Copies sent:
Mr. Tompkins
Mr. Haines
Mr. Parker
Dr. Craighead
Region 1 (Mr. Koch)
Forest Sup. - Cabinet
} with map.

Mr. Keen
Mr. Miller
File - Central
} without map.
" "

By
T. T. Terrell
Scientific Aid

Forest Insect Laboratory
Coeur d'Alene, Idaho
Jan. 11, 1936

U. S. GOVERNMENT PRINTING OFFICE: 1918 J 76133

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MISSOULA
FOREST INSECT
LABORATORY

ec

A Plant Quarantine

Forest Insect Laboratory
Coeur d'Alene, Idaho
Jan. 17, 1936

Refer to file
Project C-4A

Mr. Frank Tompkins
Chief Timber Inspector
N. P. Land Department
Helena, Montana

Dear Mr. Tompkins:

There is enclosed copy of a brief report by Mr. T.T.Terrell of this laboratory entitled "Insect Loss Survey of the Thompson River Valley and Adjacent Areas". I apologize for our delay in submitting this report, but it seems that so many matters have intervened since the close of our field season that we have not been able to prepare it until this time. I regret this delay and sincerely wish it had not been necessary.

You will note from the tables on page 3 that the acreages for the various units as listed have been shown. These figures have been computed from the accompanying map, and represent the total acreage. Our extensive surveys, which we have found to be very accurate, depict an average condition for the entire acreage covered. Therefore, though the data as given can not be taken as showing conditions on one particular section or group of sections, I am quite sure they will be found to be a very fair average for the unit under consideration. Our sample strips are projected somewhat mechanically and the results tempered with the best judgment of the chief of party, so that a representative sample is secured.

The data have been presented as representing the annual loss for the past five years. I am quite sure that you will recognize the difficulty of determining the year of attack for trees that have been killed for three or four years. However, we have certain rules that have been developed to govern our selection, and feel that our classification is fairly accurate and that, when errors do occur, they will compensate each other.

We were unable to give you a percentage of loss, as we do not have data showing the volume of timber at risk for the different units.

However, we have presented our data both in the number of trees per acre and in computed volume. If you have the volume at risk for any of these units, these data could be used to determine the percentage of loss. From the data given you will note that the loss was greatest in 1931 and 1932. Though the number of attacks per acre were the same for both 1931 and 1933, the total loss was 4,439 MBF more in 1931. This increased loss was due to the difference in the size of the trees attacked. The infestation has decreased since 1932, until in 1935 there was but .04 tree per acre infested.

Though this loss represents a rather large volume of timber, the infestation does not seem to be sufficiently serious to justify the institution of control measures. The total of 93,909 MBF for the 5-year period is indeed a real loss and one which undoubtedly will make a material reduction of the total volume of the area. Though outbreaks of the western pine beetle do not destroy as large a percentage of the stand as those of the mountain pine beetle, they occur at more frequent intervals. From the above data we assume that the cycle of infestation was at its peak in 1932 and that at the present time it has returned to at least a near-normal status. We are unable to say just how long this condition will exist. However, from past experiences one may be rather safe in assuming that it will not be for any great number of years.

It is evident that the loss has been sufficiently serious to justify keeping a rather careful check upon subsequent losses so that, in the event that the infestation again starts to increase to an epidemic status, some action could be taken. I would suggest that at least a biennial survey should be made of this drainage, though of course an annual reconnaissance would be better. At the time the plan for this survey was developed you stated that you would like to have it conducted each year. We should be pleased to have your reaction upon this matter, so that if you desire us to repeat this cooperation during the coming season we may be able to plan for it.

Again I apologize because this report was not completed sooner and trust that the information which we have given you is satisfactory. I assure you that we are desirous of being of any further assistance to you possible. If there are any questions concerning this infestation which we have not mentioned, I shall be glad to advance further information.

Sincerely yours,

James C. Evenden
Entomologist

cc to:
Mr. Pusfoey
Mr. Haines

INSECT LOSS SURVEY OF THE THOMPSON RIVER VALLEY AND ADJACENT AREAS

At the request of the Montana State Forester, the Northern Pacific Railway, and the Anaconda Copper Mining Company, a survey of the insect damage to the ponderosa pine stands of the Thompson River valley and adjacent areas was conducted by the Bureau of Entomology and Plant Quarantine during August of 1935.

The state and the two interested companies, in cooperative agreement, each bore a proportionate amount of the expense, and the Bureau of Entomology administered and directed the work.

The area surveyed is covered with mature stands of ponderosa pine interspersed with stands of lodgepole, Douglas fir, and western larch. Ownership is divided among the three above-mentioned agencies, the United States Forest Service, private owners, and public domain. The area was divided into five separate units for greater convenience of tabulation, and these units are outlined on the enclosed map.

The estimates were taken from data secured by examining 1,408 acres of sample strips at intervals throughout the area. The strips were one chain in width and several miles in length. All ponderosa pine killed by insects during the past five years were counted and classified as to year of kill. The diameter and heights were recorded to secure a volume estimate of kill per acre, which has been applied to the acreage of the areas.

The infestation evidently reached its severest stage in 1932 and

has been decreasing generally in subsequent years.

An infestation of the mountain pine beetle in lodgepole pine was found in the head of McGinnes Creek, where several spots of old kill were seen and a few 1934 attacks recorded. No 1935 attacks were found, as it was too early in the season. About 13 percent of the lodgepole had been killed on a small area about 1932, and the infestation has decreased rapidly during the following years.

The following tables present the number of ponderosa pine killed per acre by the western pine beetle (Dendroctonus brevicomis Lec.) and the volume lost in the different units for the past five years.

THOMPSON RIVER VALLEY, RAINBOW LAKE,
PINE PRAIRIE, AND FISHER RIVER

Unit	Acres	Attacks per Acre 1931	1932	1933	1934	1935	Total 1935 Att.
Wolf Creek Fisher River	61,000	.10	.15	.06	.08	.02	1,220
Thompson Lakes	91,400	.04	.04	.02	.01	.02	1,828
Lower Thompson	48,600	.12	.14	.10	.07	.02	972
Pine Prairie	42,000	.10	.19	.20	.11	.09	3,780
Rainbow Lake	72,000	.07	.12	.14	.10	.05	3,600
Total	305,000	.08	.12	.08	.07	.04	11,400

VOLUME IN M BD. FT. KILLED

	1931	1932	1933	1934	1935	Total
Wolf Creek Fisher River	5,350	7,399	2,385	3,270	2,873	21,277
Thompson Lakes	3,756	2,833	1,188	1,389	1,499	10,665
Lower Thompson	5,035	5,234	2,999	1,443	1,288	15,999
Pine Prairie	5,846	7,241	6,002	3,297	2,486	24,872
Rainbow Lake	2,491	6,149	5,465	6,077	914	21,096
Total	22,478	28,856	18,039	15,476	9,060	93,909

The age class of the 474 infested trees found on the sample strips fall into the following groups:

Age	Percent of Infested Trees
0-75	1
75-150	14
150-300	30
300+	55

The diameter of the average infested tree was 24 inches outside the bark.

As will be seen from the loss table, the severest present infestation was found in the vicinity of Pine Prairie and Rainbow Lake. Both of these areas are outside the Thompson River drainage but are given because they lie adjacent to the Thompson River areas.

Respectfully submitted,

T. T. Terrell

T. T. Terrell
Scientific Aid

Coeur d'Alene, Idaho
Jan. 11, 1936

COST ANALYSIS OF 1935 THOMPSON RIVER SURVEY
CABINET NATIONAL FOREST

Transportation	$24.98
Subsistence	113.20
Wages	176.00
Total Charge	$314.18
Terrell's Salary (contributed)	60.50
Total Field Cost	$374.68

Effective Man-days	32	
Noneffective Man-days	23	(8-Supervision (10-Travel (5-Training
Total Man-days	55	
Cost per Acre of Area Surveyed (305,000)	.0012	
Miles of Sample Strip	176	
Miles of Sample strip per effective Man-day	5.5	

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R. Y. STUART, FORESTER
THOS. NORCROSS, CHIEF ENGINEER

CABINET NATIONAL FOREST

MONTANA

PRINCIPAL MERIDIAN, MONTANA

1931

Scale 1/4 inch = 1 mile

LEGEND

- National Forest boundary
- Adjacent National Forest boundary
- Good motor road
- Poor motor road
- Trail
- Railroad
- Supervisor's headquarters
- Ranger station
- Permanent lookout station
- Triangulation station
- Homestead or other building

Compiled at Regional Office, Missoula, from U. S. G. S., U. S. G. S. Forest Service and other surveys by R. P. Hussey and A. F. Spencer, 1929. Traced by S. L. Ackley, 1929.

Revised 1931.

BOISE MERIDIAN, IDAHO — Longitude west from Greenwich — PRINCIPAL MERIDIAN, MONTANA